

**IN THE CLAIMS**

1. (Previously Presented) A gamma camera system comprising:  
5 a pair of gamma camera heads connected to form substantially a right angle;  
an arm on which the pair of camera heads are mounted; and a rotation mechanism comprising a pivot mounted on the arm, allowing for rotation of the gamma camera heads with respect to the arm about a line parallel to the connection of the gamma camera heads.
- 10 2. (Original) A gamma camera system according to claim 1, wherein the gamma camera system is adapted to allow linear movement of the gamma camera heads in at least one direction perpendicular to the line.
- 15 3. (Original) A gamma camera according to claim 2 wherein the linear motion is provided without moving a base on which the gamma camera system is mounted.
- 20 4. (Original) A gamma camera system according to claim 1, wherein the gamma camera system is adapted to allow linear motion of the gamma camera heads in all directions perpendicular to the line.
- 25 5. (Original) A gamma camera system according to claim 1, wherein the gamma camera system is adapted to perform at least a partial rotation of the gamma camera heads about an object within a quadrant formed by the heads, by combination of linear motion and rotation about the pivot.
- 30 6. (Original) A gamma camera system according to claim 5, wherein the partial rotation is at least 90°.
7. (Original) A gamma camera system according to claim 5, wherein the partial rotation is at least 180°.
8. (Original) A gamma camera system according to claim 1, wherein the arm is adapted to rotate the camera heads such that the line is rotatable about an axis perpendicular to the line.

9. (Original) A gamma camera system according to claim 1, wherein the arm comprises between 2 to 6 extensions, which extend telescopically.
10. (Original) A gamma camera system according to claim 1, wherein the gamma camera  
5 heads comprise sensors that sense obstacles in a path followed by the camera, in order to prevent the camera from colliding with a scanned object.
11. (Original) A gamma camera system according to claim 1, wherein the camera automatically follows a path which is a contour of a scanned object.  
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12. (Original) A gamma camera system according to claim 1, wherein the camera follows a preselected path.
13. (Original) A gamma camera system according to claim 1, wherein the camera follows a  
15 path that is chosen during motion of the heads about the object.
14. (Original) A gamma camera system according to claim 1, adapted to scan a prone patient.
15. (Original) A gamma camera system according to claim 14, adapted to scan a standing  
20 patient.
16. (Original) A gamma camera system according to claim 14, adapted to scan a seated patient.
17. (Original) A gamma camera system according to claim 1, wherein the gamma camera is  
25 adapted to acquire radiation data from all directions of a scanned object.
18. (Original) A gamma camera system according to claim 1, wherein the gamma camera is adapted to acquire data from 180° about the scanned object.
- 30 19. (Original) A gamma camera system according to claim 1, wherein the gamma camera is adapted to perform a scan of the entire length of a patient, without moving the patient.
20. (Original) A gamma camera system according to claim 1 and including a controller adapted to reconstruct images within a reconstruction circle and wherein the dimension of each of the

gamma camera heads in a plane perpendicular to the line is at least as large as the diameter of the circle.

21. (Original) A gamma camera system according to claim 1 wherein the gamma camera is  
5 operative to reconstruct images within a reconstruction circle and wherein the dimension of each  
of the gamma camera heads in a plane perpendicular to the line is at least as large as the radius of  
the circle, but smaller than the diameter of the circle.
22. (Original) A gamma camera system according to claim 21 wherein the dimension is less  
10 than 1.5 times the radius.
23. (Original) A gamma camera head according to claim 1 wherein the heads are rigidly  
connected at the angle.
- 15 24. (Previously Presented) A gamma camera system comprising:  
a pair of gamma camera heads connected to form substantially a right angle; and  
an arm on which the pair of cameras heads are mounted,  
wherein the arm is adapted to allow for linear motion of the pair of camera heads in a plane  
containing the right angle and is not adapted for orbital motion of the arm itself about patient in a  
20 field of view of the camera heads.
25. (Original) A gamma camera according to claim 24 wherein the arm is adapted to move in  
the plane without moving a base on which the camera system is mounted.
- 25 26. (Original) A gamma camera system according to claim 24 wherein the arm is adapted to  
allow for linear motion in all directions within the plane of the right angle.
27. (Original) A gamma camera system according to claim 24 and including a controller  
operative to reconstruct images within a reconstruction circle and wherein the amount of the linear  
30 motion is at least as large as a diameter of the circle.
28. (Original) A gamma camera head according to claim 24 wherein the heads are rigidly  
connected at the angle.

29. (Currently Amended) A gamma camera system, comprising:

a pair of gamma camera heads connected to form an angle and adapted to view a reconstruction volume from a plurality of directions having an axis perpendicular to a plane containing an angle; and

5 a controller adapted to reconstruct a three dimensional image of radiation sources in the reconstruction volume from data acquired by the camera heads as they ~~rotate~~ are repositioned about the axis,

wherein each of the pair of gamma camera heads has a dimension in the plane containing the angle smaller than a largest dimension of the reconstruction volume perpendicular to the axis;

10 and

wherein the gamma camera heads are adapted to have a fixed relationship with respect to each other.

30. (Original) A gamma camera system according to claim 29 wherein the angle is  
15 substantially equal to a right angle.

31. (Original) A gamma camera system according to claim 29 wherein each of the gamma camera heads has a dimension of between 50% and 75% of the largest dimension.

20 32. (Currently amended) A ~~gamma camera head according to claim 29~~ A gamma camera system, comprising:

a pair of gamma camera heads connected to form an angle and adapted to view a reconstruction volume from a plurality of directions having an axis perpendicular to a plane containing an angle; and

25 a controller adapted to reconstruct a three dimensional image of radiation sources in the reconstruction volume from data acquired by the camera heads as they ~~rotate~~ are repositioned about the axis,

wherein each of the pair of gamma camera heads has a dimension in the plane containing the angle smaller than a largest dimension of the reconstruction volume perpendicular to the axis;

30 and

wherein the heads are rigidly connected at the angle.